

CLAIMS:

1. Circuit arrangement for operating a lamp equipped with
- input terminals for connection to the poles of a supply voltage source,
 - a first series arrangement comprising a first switching element shunted by a first diode and a second switching element shunted by a second diode and connecting the input terminals,
 - 5 – a second series arrangement comprising a third switching element shunted by a third diode and a fourth switching element shunted by a fourth diode and connecting the input terminals,
 - a load circuit connecting a terminal between the first and the second switching element with a terminal between the third and the fourth switching element and comprising a series arrangement of an inductor L1, terminals for lamp connection and an inductor L2,
 - 10 – a control circuit coupled to control electrodes of the switching elements and comprising circuitry for controlling the circuit arrangement in a first operating state in which the fourth switching element is maintained in a conductive state while the first switching element is rendered alternately conductive and non-conductive at a high frequency, and for controlling the circuit arrangement in a second operating state in which the third switching element is
 - 15 maintained in a conductive state while the second switching element is rendered alternately conductive and non-conductive at a high frequency, and for alternating the operating state of the circuit arrangement between the first and the second operating state at a low frequency,
 - a capacitor C1 coupled with a first end to a terminal of the load circuit between the inductor L1 and a terminal for lamp connection,
 - 20 characterized in that a second end of the capacitor C1 is coupled to an input terminal, and in that the control circuit comprises circuitry for controlling the circuit arrangement in a third operating state, in which the first and third switching element are operated in such a way that at least one of these switching elements is rendered alternately conductive and non-
 - 25 first and the second operating state, and for controlling the circuit arrangement in a fourth operating state, in which the second and fourth switching element are operated in such a way that at least one of these switching elements is rendered alternately conductive and non-conductive at a high frequency, during a time interval between subsequent operation in the second and the first operating state.

2. Circuit arrangement according to claim 1, wherein the terminals for lamp connection are connected by a circuit part comprising a capacitor C2.
- 5 3. Circuit arrangement according to claim 1, wherein the circuit arrangement comprises a capacitor C2 coupled between an input terminal and a terminal between a terminal for lamp connection and inductor L2.
- 10 4. Circuit arrangement according to claim 1, 2 or 3, wherein the control circuit comprises circuitry for increasing the duty cycle of the first switching element at the end of the first operating state and circuitry for increasing the duty cycle of the second switching element at the end of the second operating state.
- 15 5. Circuit arrangement according to claim 1, 2, 3 or 4, wherein the control circuit comprises circuitry for operating both the first and the third switching element at a high frequency during the third operating state and for operating both the second and the fourth switching element at a high frequency during the fourth operating state.
- 20 6. Circuit arrangement according to one or more of the previous claims, wherein the control circuit comprises circuitry for controlling the circuit arrangement in a fifth operating state, in which the fourth switching element is rendered alternately conductive and non-conductive at a high frequency, during a time interval between subsequent operation in the first and the third operating state, and for controlling the circuit arrangement in a sixth operating state, in which the third switching element is rendered alternately conductive and
25 non-conductive at a high frequency, during a time interval between subsequent operation in the second and the fourth operating state.
7. Circuit arrangement according to claim 6, wherein the first switching element is maintained in a conductive state during the fifth operating state and the second switching
30 element is maintained in a conductive state during the sixth operating state.
8. Circuit arrangement according to claim 6, wherein the control circuit comprises circuitry for rendering the first switching element alternately conductive and non-conductive at a high frequency during the fifth operating state and for rendering the second

switching element alternately conductive and non-conductive at a high frequency during the sixth operating state.

9. Circuit arrangement according to claim 6, 7 or 8, wherein the control circuit
5 comprises circuitry for decreasing the duty cycle of the fourth switching element during the fifth operating state and for decreasing the duty cycle of the third switching element during the sixth operating state.
10. Circuit arrangement according to claim 8 or claim 9, wherein the control
10 circuit comprises circuitry for increasing the duty cycle of the first switching element during the fifth operating state and for increasing the duty cycle of the second switching element during the sixth operating state.
11. Circuit arrangement according to one or more of the previous claims, wherein
15 the control circuit comprises circuitry for increasing the duty cycle of each of the switching elements that is operated at a high frequency during the third operating state and for increasing the duty cycle of each of the switching elements that is operated at a high frequency during the fourth operating state.
- 20 12. Circuit arrangement according to one or more of the previous claims, wherein the control circuit comprises means for rendering the first, second, third and fourth switching element conductive when respectively the first, second, third or fourth diode carries a current and for rendering the first, second, third and fourth switching element non-conductive again before rendering respectively the second, first, fourth and third switching element conductive.